



Product Guide Flexmaster U.S.A.®

Flexible Duct, Sheet Metal Fittings, Access Doors,
Sound Attenuation, and Accessories



Where there's quality, there's Flexmaster U.S.A.®

Flexmaster U.S.A.®, located in Houston, Texas, is a leading commercial HVAC flexible duct and sheet metal fitting manufacturer with over 45 years of success in the industry. Our Flexmaster U.S.A.® product line of air distribution solutions includes: flexible ducts, acoustical ducts, sheet metal fittings, access doors, low-leakage access doors, and accessories for many heating, ventilation, and air conditioning applications.

Designed for efficient installation and engineered to precise standards, our flexible duct sets the standard in quality and dependability. Unique to others in the industry, we manufacture flexible ductwork without the use of glues or adhesives. The mechanical-locked inner core maintains its shape at all 90° bends and offsets, thus eliminating the need for extra reinforcement.

This manufacturing process produces a flexible duct with the highest performance credentials of any flexible duct. The Flexmaster U.S.A.® 20 year warranty is unsurpassed in the HVAC ductwork industry.

Our newest product additions include:

- Medical and Acoustical Solutions
- 2000 G - Class A Factory Sealed Fittings
- Triple Lock Silencers
- Return Air Kits
- Oval Starter Collars

Our 20 year warranty backs our products as a guarantee for their long term performance.

20 Year Warranty



Flexmaster U.S.A.[®] A Masterduct Company

Flexmaster U.S.A.[®], a Masterduct company, manufactures flexible duct, sheet metal fittings, access doors and HVAC accessories. Worldwide, our company is working towards common brand identity that will improve our visibility as well as promote synergies between our multiple companies across the globe. Flexmaster U.S.A.[®] item numbers and nomenclatures are not changing and will continue to be branded as in the past.

All Flexmaster U.S.A.[®] flexible duct products carry the ETL mark which are tested to UL181 Standards and are listed as Masterduct/Flexmaster U.S.A. with ETL.

- Flexible Duct
- Sheet Metal Fittings
- Silencers
- Triple Lock Specialty Metal Products
- Access Doors
- Accessories
- 20 Year Warranty on Most Products

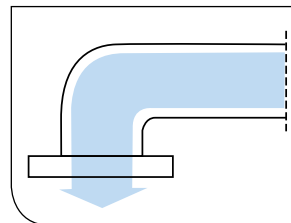
Masterduct is a subsidiary of the Masterflex Group with headquarters in Gelsenkirchen, Germany. Driven by internationalism and innovation, The Masterflex Group is a specialist in the development and production of high-quality hose and connector systems. The Masterflex Group is a global organization with 13 operating units throughout Europe, America and Asia.

www.Masterduct.com

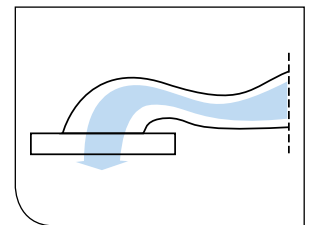
www.MasterflexGroup.com



Flexmaster U.S.A.[®]
Advantage



Standard Duct



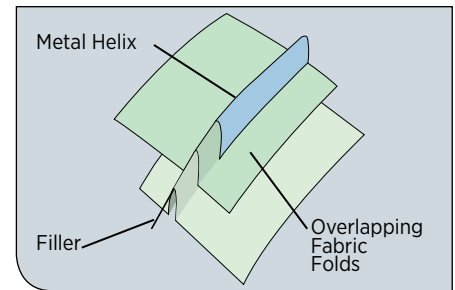


Flexible Fabric Ducts

Universal Characteristics

- ETL Class 1 Air Duct
- Flame/Smoke: 25/50
- Operating Temperature Range: -20°F to + 250°F
- Rated Velocity: 5500 F.P.M.
- Available Thermal Conductance (R-factor): R4.2, R6 or R8
- 25 Ft. Standard Length
- Vapor Barrier Permeance:
 Black Polyethylene (B) - .10 Perm A.S.T.M., E96, Procedure A
 Silver Mylar (M) - .05 Perm A.S.T.M., E96, Procedure A
- 20 Year Warranty - Except on Type 9 (5 Years)

Robust Mechanical Lock Construction



Our flexible duct sets the standard in quality and dependability. Unique to the industry, we manufacture flexible ductwork without the use of glues or adhesives.

The mechanically-locked inner core maintains its shape at all 90° bends and offsets, thus eliminating the need for extra reinforcement or hard 90° elbows. This manufacturing process produces a flexible duct with the highest performance credentials of any flexible duct in the industry.

Type 1 - Acoustical Flex

Core: Polyethylene Fabric (PE)

Pressure Rated:

- 10" w.g. positive
- 5" w.g. negative thru 16" dia.
- 1" w.g. negative, 18" & 20" dia.

Typical Applications:

Acoustical Applications for Conference Rooms/
 CEO Offices Libraries/Theaters/Schools



Type 1NI-C
 Non-Insulated
 Connector Rated



Type 1B
 Duct Rated



Type 1M
 Duct Rated

Type 3 - High Pressure

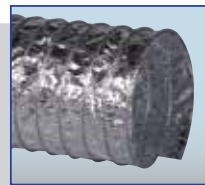
Core: Trilaminate of Aluminized Polyester, Fiberglass and Polyester

Pressure Rated:

- 20" w.g. positive
- 10" w.g. negative thru 12" dia.
- 5" w.g. negative, 14" & 16" dia.
- 1" w.g. negative, 18" & 20" dia.

Typical Applications:

High Pressure Supply Connections, Medium Pressure Exhaust Connections, Low Temperature Heat Exhaust Connections, Light Moisture Connections, Temporary Duct Applications and Upstream of the VAV



Type 3NI-C
 Non-Insulated
 Connector Rated



Type 3B
 Duct Rated



Type 3M
 Duct Rated

Flexible Fabric Ducts

Type 4 - High Pressure

Core: PVC Coated Fiberglass

Pressure Rated:

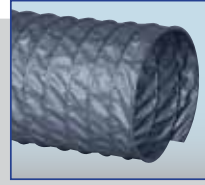
25" w.g. positive
 10" w.g. negative thru 12" dia.
 5" w.g. negative, 14" & 16" dia.
 1" w.g. negative, 18" & 20" dia.

Typical Applications:

High Pressure Connections, Clean Room Connections, Light to Moderate Moisture Environments, Temporary Duct Applications, Medium Pressure Exhaust Connections and Upstream of the VAV



Type 4NI-C
Non-Insulated
Connector Rated



Type 4NI
Non-Insulated
Duct Rated



Type 4B
Duct Rated



Type 4M
Duct Rated

Type 5 - Medium Pressure

Core: Trilaminate of Aluminized Polyester, Fiberglass and Polyester

Pressure Rated:

15" w.g. positive
 10" w.g. negative thru 12" dia.
 5" w.g. negative 14" & 16" dia.
 1" w.g. negative, 18" & 20" dia.

Typical Applications:

Medium Pressure Supply Connections (VAV/FPB Boxes), Low Pressure Supply Connections (Diffusers/Grilles), Light Pressure Exhaust Connections, Light Moisture Environments,



Type 5NI-C
Non-Insulated
Connector Rated



Type 5B
Duct Rated



Type 5M
Duct Rated

Type 6 - Acoustical Flex

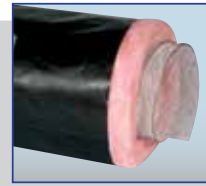
Core: Spunbond Nylon Fabric

Pressure Rated:

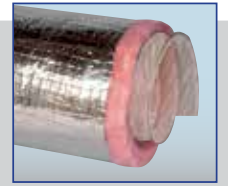
6" w.g. positive
 5" w.g. negative thru 16" dia.
 1" w.g. negative, 18" & 20" dia.

Typical Applications:

Acoustical Applications for Conference Rooms/ CEO Offices Libraries/Theaters/Schools



Type 6B
Duct Rated



Type 6M
Duct Rated

Type 9 - Low Pressure

Core: A Double Lamination of Tough Polyester with Spring Wire Support

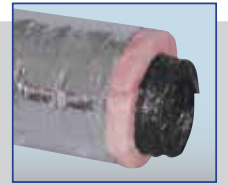
Pressure Rated:

6" w.g. positive
 1/2" w.g. negative

Typical Applications:

Low Pressure Connections, Light Commercial, Residential

***5 Year Warranty**



Type 9M
Duct Rated

Flexible Fabric Ducts

Thermo Sleeves

TSB - Black Polyethylene Outer Jacket

Perm rating = .10 grains per square foot, per hour, per inch of mercury

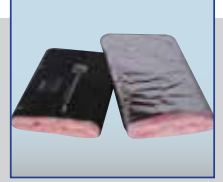
TSM - Silver Mylar Outer Jacket

Perm rating = .05 grains per square foot, per hour, per inch of mercury

Available in 25 ft. standard lengths.

Sizes to Cover Diameters from 3" thru 10", 12", 14", 15", 16", 18", 20", 24"

Thick Fiberglass Blanket - R6.0



Thermo Sleeves

Blue Fume Flex

Core: Light flame retardant PVC Coated Fabric, mechanically locked without adhesives

Pressure Rated:

30" w.g. positive

12" w.g. negative

Features:

Light Weight

Flame retardant

Excellent chemical resistance

Highly flexible

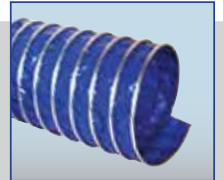
External helix protects against abrasion

No adhesive in construction

Typical Applications:

Specialty designed for fume arm systems

Not UL/ETL rated



Blue Fume Flex

Flex Duct Kits

Features:

Factory assembled with collars on each end per ETL standards

Shipped assembled per custom order

Black polyethylene or silver mylar outer jacket

Thermally insulated to R4.2, R6 or R8

Standard Sizes: 4" thru 20"

Standard Lengths of 5', 6' and 7'

Custom lengths and sheet metal fitting options available

Reduces waste that can occur with 25' boxes

Benefits:

Designed with the HVAC Contractor in Mind

Efficient & Cost Effective Installation for Low and Medium Pressure HVAC Systems

Affordable Time and Labor Saving Options



Polyethylene Outer Vapor Barrier



Silver Mylar Outer Vapor Barrier

Return Air Kits

Features:

Available in Type 1 or Type 6 flex

Shipped assembled, per custom order

Black polyethylene or silver mylar outer jacket

Thermally insulated to R4.2, R6 or R8

Standard Sizes: 4" thru 20"

Standard Lengths of 5', 6' and 7'



Return Air Kit

Triple Lock

The Flexmaster U.S.A.® Triple Lock Product is an all metal flexible duct which is constructed entirely without the use of adhesives. The Triple Lock mechanical joint makes an air-tight seam, while the circumferential corrugations provide excellent strength and flexibility.

Minimum bend radius to center line is one diameter. However, our recommended radius is 1.5 diameters, in accordance with accepted practice.

Triple Lock aluminum and stainless steel ducting may be easily cut to size and hand-formed into elbows, or offset to suit job conditions without subsequent sagging or droop.

Triple Lock has much lower pressure loss than conventional flexible ducts due to the small but consistent corrugations that provide both strength and flexibility.

Standard length: 8 ft sections

Triple Lock

Pressure Rated:

- 10" w.g. positive thru 16" dia.
- 6" w.g. positive, 18" dia.
- 12" w.g. negative thru 16" dia.
- 4" w.g. negative, 18" dia.

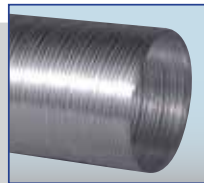
Stainless Steel Non-Insulated:

- 12" w.g. positive
- 12" w.g. negative

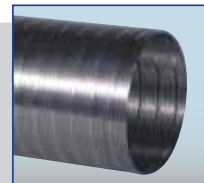
Temperature Rating:

- Insulated (-20° to 250°F) - ETL Class 1, Flame/Smoke: 25/50
- NITL (-60° to 600°F) - ETL Class 0, Flame/Smoke: 0/0
- NITLSS (-60° to 1500°F) - ETL Class 0, Flame/Smoke: 0/0

Diameters Available: 3", 4", 5", 6", 8", 10", 12", 14", 16", and 18"



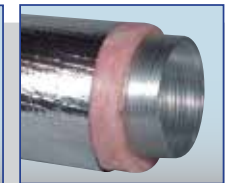
NITL
Aluminum
Non-Insulated



NITLSS
Stainless Steel
Non-Insulated



TLB
Aluminum



TLM
Aluminum

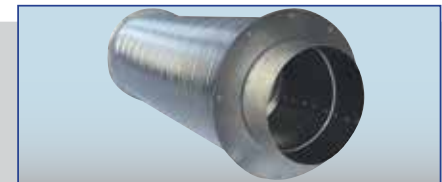
Triple Lock Silencer

Pressure Rated:

- 10" w.g. positive thru 12"
- 6" w.g. positive 14"
- 12" w.g. negative thru 12"
- 4" w.g. negative 14"

Temperature Rating:

- Insulated (-20° to 250°F) - ETL Class 1, Flame/Smoke: 25/50



SA-TLD5
Aluminum

Straight Attenuator - Insertion Loss in dB (5 foot length)

Product	FPM	125	250	500	1K	2K	4K	8K
SA-TLD5-6"	2500	10	25	>41	>42	34	21	13
SA-TLD5-10"	2500	6	17	29	36	25	16	11
SA-TLD5-14"	2500	7	13	23	26	16	13	6

Testing was provided by Intertek Laboratories. Testing was conducted in accordance with ASTM Standard E477-2006a, entitled "Standard Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers" and ADC test Code FD 72-R1, entitled "Flexible Air Duct Test Code FD 72".

Note: Insertion loss data denoted with a (>) sign has been corrected to take into consideration the effect of the generated sound pressure level approaching the sound pressure level obtained during the insertion loss portion of the test. In some cases, the insertion loss may be higher than shown.

Contact factory for additional information

Triple Lock

Medical Grade Triple Lock

Effective acoustical design in medical care facilities should allow for a good night's rest for patients and a distraction-free environment for health care professionals.

The Flexmaster U.S.A.® medical grade acoustical duct provides a safe and healthy environment while eliminating noise from the air flow.

- Triple-locked aluminum perforated core, 20-25% open area
- Air stream protected from thermal insulation jacket by ETL-approved acoustical sleeve
- Components will not burn (self extinguishing)
- Anti-microbial properties inhibit the growth of mold and mildew
- 25/50 flame smoke rating
- ETL class 1 rated: conforms to NFPA-90A
- Rated velocity 4000 FPM

Diameter: 6", 8", 10", 12", 14", and 16"

Thermal barrier available: R-6.0

Standard Length: 5' (contact factory for special lengths)

Noise Reduction dB (5 foot length, 10" diameter)*						
Hertz	125	250	500	1K	2K	4K
Octave Band	2	3	4	5	6	7
MGA-TLB-R6	12.2	23.2	22.9	27.8	21.4	11.2
MGA-TLM-R6	15.8	24.6	25.8	27.9	18.2	10
MGA-TLD-R6	10.7	12.8	24	28.6	16.1	10.9

Straight @ 1,000 FPM

Additional sizes & their dB reductions available by request

Medical Grade Triple Lock

Pressure Rated:

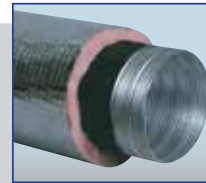
6" w.g. positive
2" w.g. negative.

Temperature Rating:

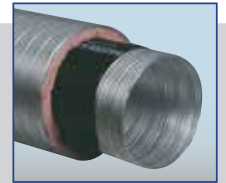
Insulated (-20° to 250°F) - ETL Class 1, Flame/Smoke: 25/50



MGA TLB R6



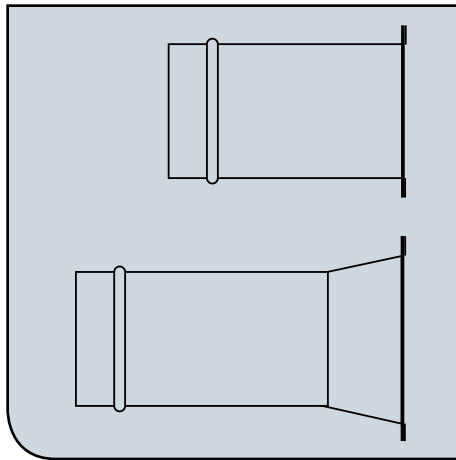
MGA TLM R6



MGA TLD R6

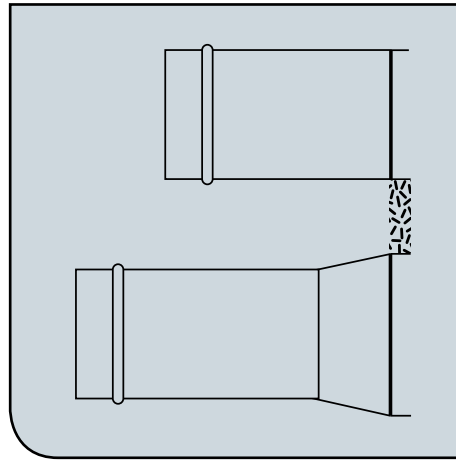
Sheet Metal Options

FL and CB Options



Flange with Stick On Gasket (SOG)

1" flange with stick on gasket



Insulation Guard (IG)

1" insulation guard, 26 Ga. galvanized

Damper Control Options



BO3

- 2" Build Out
- Locking Quadrant
- 3/8" Aluminum Square Shaft
- Nylon Bushing



BO4

- 2" Rossi (Everlock) Build Out
- Locking Quadrant
- 3/8" Aluminum Square Shaft
- Nylon Bushing

BO4 Option for Flexmaster U.S.A.® Fittings

We now offer the Rossi (Everlock) 2" Standoff which was created to replace the friction locks on the market with a more reliable positive (absolute) lock. It is fully hand-operational so that there are no tools needed for adjusting or readjusting the damper blade position on site. Rossi products adhere to all ETL requirements, Plenum ratings and SMACNA standards for manual damper and comply with NFPA 90A & 90B.

Sheet metal Gauge Chart		
Gauge	Galvanized Steel (in.)	Stainless Steel (in.)
26	.0217	.0188
24	.0276	.0250
22	.0336	.0313
20	.0396	.0375

One Piece Flange Fittings

Flexmaster U.S.A.® Flanged Spin Collar Fittings and Conical Bellmouths are manufactured in 26 gauge and 24 gauge with a one-piece base, producing a more energy efficient sheet metal fitting.

Flange & Gasket
FL-SOG, FLD-SOG
CB-SOG, CBD-SOG

Sheet Metal Fittings

Spin Collar Fittings

FL, FLD, FLE, FLDE

Available Order Sizes: 4" - 20"

26 Ga., G-90 Galvanized

1/8" Tolerance

Optional Features:

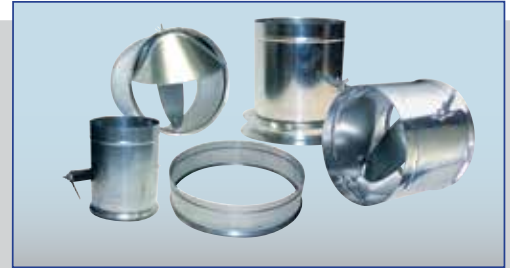
24 Ga., 22 Ga., 20 Ga. Fittings & Dampers

Aluminum, Stainless Steel

BO3 & BO4 Damper Control Options

Flange and Gasket, Insulation Guard

90° or 45° Scoop (Extractor)



Conical Bellmouth Fittings

CB, CBD, CBE, CBDE

Available Order Sizes: 4" - 20"

26 Ga., G-90 Galvanized

1/8" Tolerance

Optional Features:

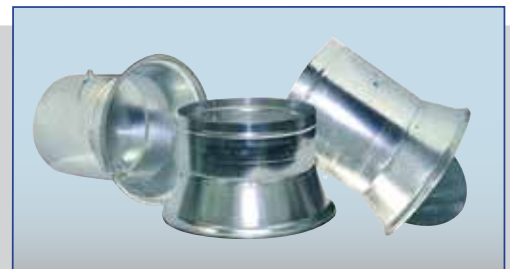
24 Ga., 22 Ga., 20 Ga. Fittings & Dampers

Aluminum, Stainless Steel

BO3 & BO4 Damper Control Options

Flange and Gasket, Insulation Guard

90° or 45° Scoop (Extractor)



Connecting Sleeves

SL, SLD

Available Order Sizes: 4" - 20"

26 Ga., G-90 Galvanized

1/8" Tolerance

Optional Features:

24 Ga., 22 Ga., 20 Ga. Fittings & Dampers

Aluminum, Stainless Steel

BO3 & BO4 Damper Control Options



Sheet Metal Fittings

STO Fittings

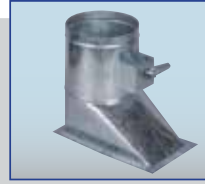
Available Sizes: 5" - 20"
 26 Ga. G-90 Galvanized
 4" w.g. Construction
 1/8" Tolerance

Features:

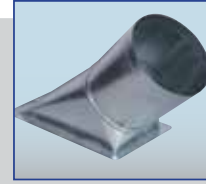
1" Reinforcing Flange with Corner Clips
 Prepunched Mounting Holes
 Adhesive Coated Gasket for Minimal Leakage

Optional Features:

24 Ga., 22 Ga., 20 Ga.
 Aluminum, Stainless Steel
 BO3 & BO4 Damper Control Options
 Insulation Guard



STO, STOD,
STOD-LDS



STO45, STO45D



STOC, STOCD

LDS Fittings

STO-LDS, STOD-LDS

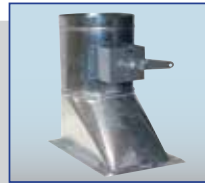
Available Order Sizes: 5" - 20"
 24 Ga. G-90 Galvanized Body
 4" w.g. Construction
 1/8" Tolerance
 Brass Bushings

Features:

1" Reinforcing Flange with Corner Clips
 Prepunched Mounting Holes
 Adhesive Coated Gasket for Minimal Leakage

Optional Features:

Aluminum, Stainless Steel
 Optional Damper Blade Y-Axis Left or Y-Axis Right
 2" BO3 Buildout



STOD
X-Axis Standard



STOD
Y-Axis Left



STOD
Y-Axis Right

2000G Fittings

SL 2000G, FL 2000G, CB 2000G, STOD 2000G

Low Leakage

Features:

1" Flange with double sided adhesive gasket (No SOG for SL)
 26 Ga., G-90 Galvanized
 1/8" tolerance
 Factory Class A Sealed
 2" BO3 Buildout
 Nylon Bushings
 Reduces leakage from the damper barrel to less than 1 cfm at 4" s.p. (in. w.g.)
 Contact factory for specific leakage data

Option Features:

24 Ga.
 Aluminum, Stainless Steel



SL 2000G



FL 2000G



CB 2000G



STOD 2000G

Sheet Metal Fittings

Saddle Tap Fittings

FLST, FLDST, FLDBO3ST, FLDBO4ST
STOST, STODST, STODBO3ST, STODBO4ST

Available sizes 5" - 20"
Fits up to 24" spiral pipe
24 ga G-90 Galvanized
1/8" tolerance

Optional features:

Aluminum, stainless steel
22 Ga, 20 Ga.
BO3 & BO4 Damper Control Options

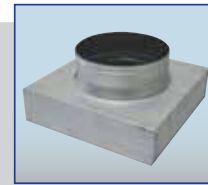


Square to Round Adapters

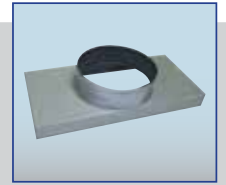
Black Interior Standard
26 Ga., G-90 Galvanized
1/8" Tolerance
Standard Depth Size: 2", 3" or 4"
Custom Sizes Available

Optional Features:

24 Ga., 22 Ga., 20 Ga., Black Interior not Available
26 Ga. can be produced in Galvanized non-black Interior Upon Request
Aluminum, Stainless Steel
Available in Large (Nom. + 1/8") or Small (Nom. - 1/8")
Neck size equal to or less than smallest square dimension
Open or Closed Corners
2" oversized square to round



Square to Round Adapter



Rectangular to Round Adapter

Sheet Metal Fittings

Round to Round Adapters

RRC - Round to Round Conical

RRF - Round to Round Flat

26 Ga., G-90 Galvanized

1/8" Tolerance

Custom Sizes Available

Optional Features:

24 Ga., 22 Ga., 20 Ga.

Aluminum, Stainless Steel

Available in Large (Nom. + 1/8") or Small (Nom. - 1/8")



Round to Round Adapter

Sample Product Sizes

4" to 6"	8" to 12"
5" to 6"	10" to 12"
6" to 8"	12" to 14"
7" to 8"	14" to 16"
8" to 10"	16" to 18"

Inspector Series Doors

Inspector Series Spin Doors

SDSM

High Pressure, Low Leakage, Spin Door

24 Ga. door/22 Ga. frame
Standard R4.2 Insulation
More Energy Efficient

Optional Features:

Flange and Gasket (SOG)
Backplate Only - Available in Aluminum, Stainless Steel

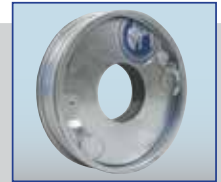
R6 Insulation
Safety Cable

Door Sizes: 8", 10", 12", 18", 24"

The Inspector Series Spin Door is manufactured with heavy gauge galvanized steel to meet the highest quality standards required in a high pressure access door. This insulated and gasketed access door is designed for applications in a low to high-pressure HVAC air distribution system. The Inspector Series Spin Door's unique round construction provides for a quick installation as its outer frame is spun into the sheet metal duct and then the self sealing inner door is put into place and locked by turning the pre-installed latches. The outer Spin Door frame is made of heavy 24 gauge galvanized steel, rolled and double hemmed. The inner door is made of heavy gauge galvanized steel, rolled and triple hemmed. When the outer Spin Door frame is properly installed and sealed for the specified operating pressure the leakage rate is extremely low. No raw edges are exposed and therefore a safe entry and exit is insured.



SDSM Door



SDSM Port Door

Low Leakage

Independent laboratory testing has concluded our standard SDSM doors are low leakage doors. Leakage rate may vary based on installation by mechanical contractor. Leakage rates may vary with added options such as view ports and Flange and Gasket (SOG) modifications.

TBSM

Low Pressure Tab Door

24 Ga. door/22 Ga. Frame
Custom Sizes Available
Square or Rectangular
Standard R4.2 Insulation

Optional Features:

Continuous Hinge
Flange and Gasket (SOG)
Special Hardware
Aluminum, Stainless Steel
R6 Insulation
Safety Cable

Nominal Door Sizes: 6", 8", 10", 12", 14", 16", 18", 20", 24"

The Inspector Series Tab Door is manufactured with G-90 galvanized steel to meet the highest quality standards required by SMACNA HVAC access doors. The Inspector Series Tab Door's strong frame construction provides for a solid installation as its outer frame tabs are formed around the sheet metal duct and then the self sealing inner door is put into place and locked by turning the pre-installed cam latches. The outer tab door frame is 22 Ga., galvanized steel, formed, notched and hemmed. The double sided insulated R4.2 inner door is constructed of 24 Ga. galvanized steel.



TBSM H Door



TBSM Port Door



TBSM SOG Door

Accessories

FLEXRIGHT® Elbows

Designed to form flexible duct into highly efficient 90° degree elbows.

Universal Mount, 1 piece fully adjustable radius forming brace to support 4" inch (102-mm) through 16" inch (406-mm) diameter flexible air ducts.

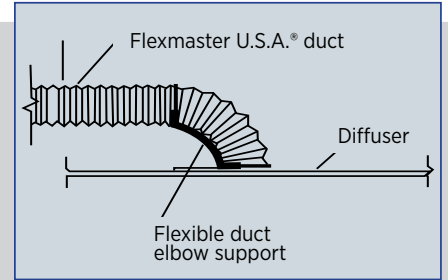
Nylon cable ties secure duct to duct support, (purchased separately). Made from 100% recycled material (copolymer polypropylene). UL 2043 Listed.

Meets ASHRAE's Advanced Energy Design Guides for Schools, Warehouses, Office and Retail Buildings.

The FlexRight® flexible duct elbow is manufactured by Build Right Products.



FLEXRIGHT® Elbow



Nylon Clamps

UL 181B-C

Material:

6/6 Nylon

Color:

Natural Nylon

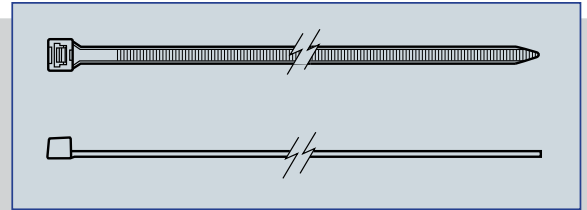
Temp Range:

-40°F to 185°F

Flammability:

U.L. 94V-2

ATB: Less than 5 sec. per ASTM D635



Nylon clamp

*NOTE: Clamps Adjustable for DUCT Diameters 4" thru 10"; for larger diameters join two or more clamps together. Can be used for both high and low pressure flexible duct.

Nylon Clamps Table

Part Number	Maximum Diameter Formed	Dimensions - Inches (mm)			Average Loop Tensile Strength Lbs. (N)	STD Pkg. Qty.
		Length (L)	Width (W)	Thickness		
SLT-10-LH-L*	11.0 (297.4)	37.1 (942.8)	.340 (8.610)	.090 (2.300)	175 (778)	50

Accessories

Quick Release Spin Clamps

Bridging over helix allows for better contact of clamp to duct thus lowering leakage.

Material: Stainless Steel

Flex Size: 4" to 20"

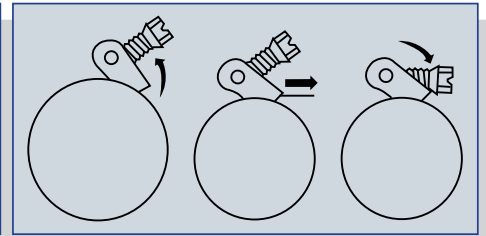


Stainless Steel Clamp Quick Release LS Series

Easy On...Easy Off...in 3 Simple Steps!
Reverse procedure for quick release and removal.
No need to disassemble connection.

Material: Stainless Steel

Flex Size: 4" to 20"



Slide Clamp
Into Position

Slide Band
Through
Housing

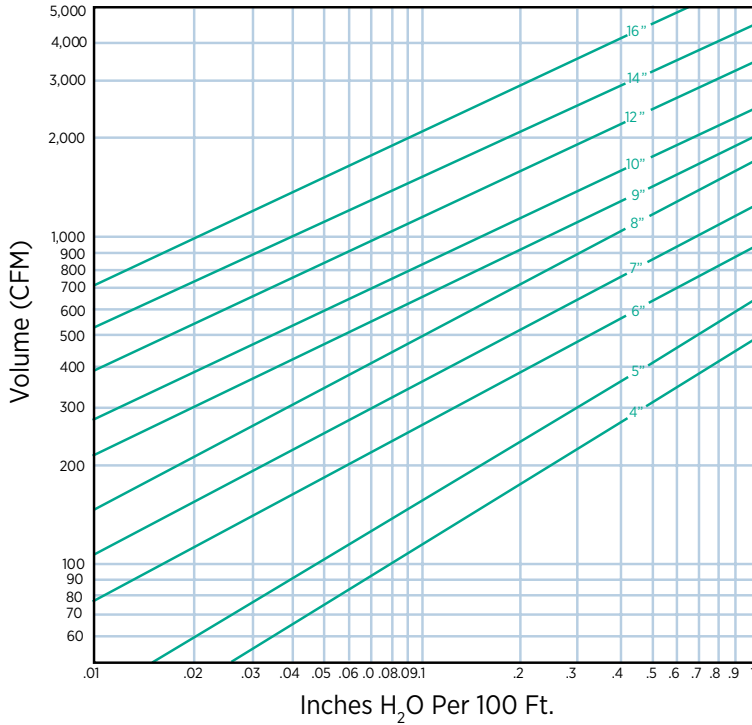
Slide Screw
Down for
Engagement

Quick Release Spin Clamps Table

Clamp	Flex Size	Clamp Min.	Dia. MAX	Length
LS-88	4	2.06	6.00	20"
LS-88	5	2.06	6.00	20"
LS-104	6	1.75	7.00	23"
LS-152	8	2.00	10.00	32"
LS-152	9	2.00	10.00	32"
LS-188	10	2.06	12.31	40"
LS-232	12	10.19	14.00	48"
LS-258	14	10.00	16.00	52"
LS-280*	16	14.25	18.00	58"
LS-312	18	14.00	20.00	64"
LS-344	20	16.00	22.00	73"

*Can only be used on listed size.

Flexmaster U.S.A.® Duct Material - 90° Bend Friction Loss

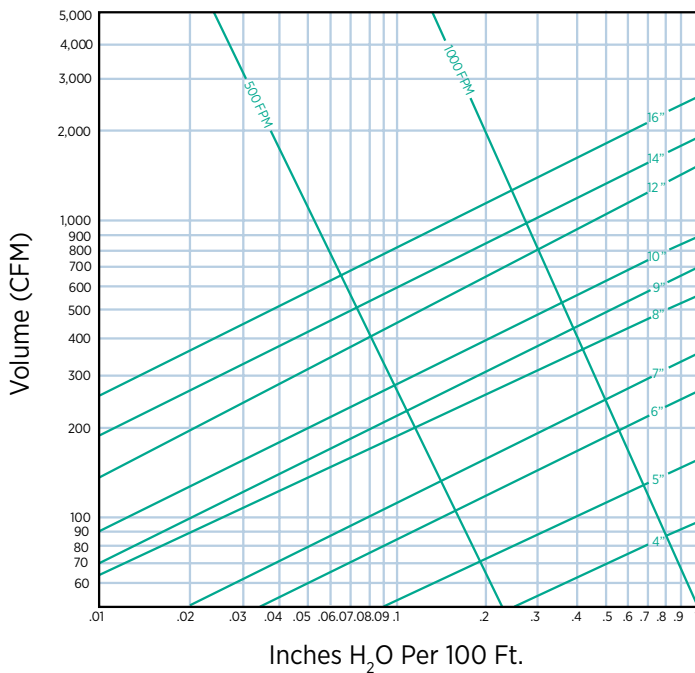


The data presented herein is based on reliable laboratory tests. For all sizes the test bend was formed around a template of the same diameter as the duct resulting in a radius to Diameter ratio of 1. The data has not been extrapolated for other bend ratios but must be considered when comparing values arrived at different R/D Ratios.

By its very nature, flexible duct presents variations not present in the measurement of friction loss in rigid pipe. Variations exist between the test procedure and actual field installations and Flexmaster U.S.A.®, Inc. assumes no responsibility for performance characteristics resulting from conditions which differ from those used in laboratory tests.

90° Bend - Inches H₂O Per 100 Ft. - $\frac{\text{RADIUS}}{\text{DIAMETER}} = 1$

Flexmaster U.S.A.® Duct Material - Straight Run Friction Loss



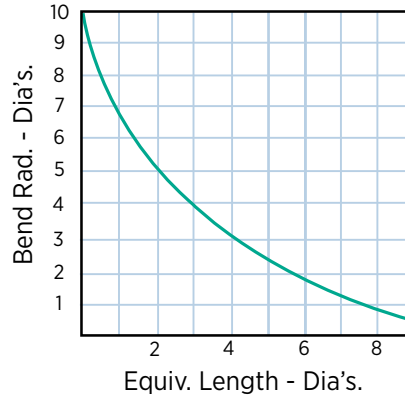
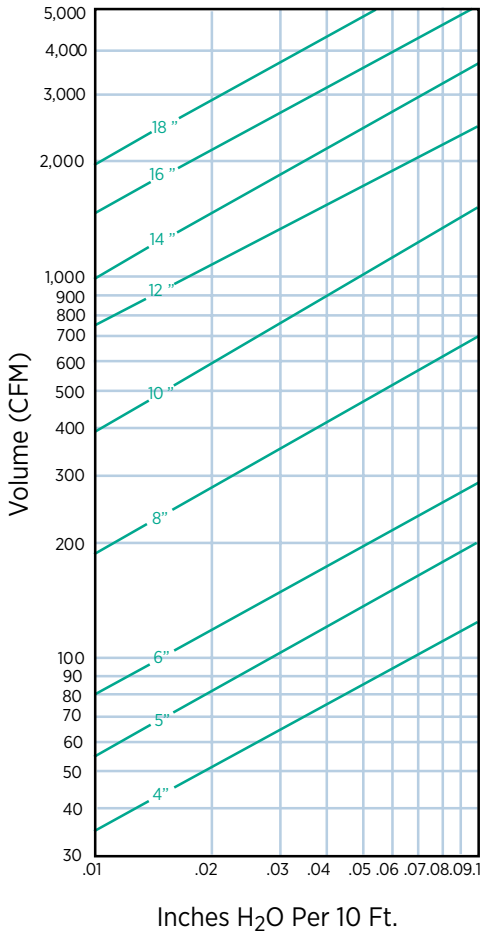
Round Duct Area Table

Duct Diameter (inches)	Cross Section Area (sq. ft.)
4"	.0873
5"	.1363
6"	.1963
7"	.2672
8"	.3490
9"	.4418
10"	.5454
12"	.7854
14"	1.069
16"	1.396
18"	1.767
20"	2.182

Flexmaster U.S.A.® Triple Lock Metal Flexible Ducting

Straight Run Friction Loss

All Metal • Corrosion Resistant • Air Tight • Permanent • High & Low Pressure



Equivalent Length of Ducting for any Bend Radius

Dia.	Wt./Ft. Lbs.	Bend Radius
4"	.15	6"
5"	.19	7"
6"	.22	9"
7"	.28	10"
8"	.31	12"
9"	.35	13"
10"	.38	15"
12"	.44	18"
14"	.56	21"
16"	.62	24"

Hydronic Equivalents
One Gallon Water = 8.33 pounds
Specific heat (C _p) water = 1.00 Btu/lb °F (@68 °F)
Specific heat (C _p) water vapor = 0.45 Btu/lb °F (@68°F)
One ft. of water = 0.433 psi
One cu. ft. of water = 62.4 lb = 7.49 gal.
One in. of mercury (Hg) = 13.6 in. w.g. = 1.13 ft. w.g.
Atmospheric Pressure = 19.92 in. Hg = 14.696 psi
One psi = 2.31 ft. w.g. = 2.04 in. Hg

$$TP = V_p + SP$$

$$V_p = \left(\frac{V}{4005} \right)^2$$

$$V = V_m \left[\frac{d(\text{other than standard})}{0.075 (d = \text{std. air})} \right]$$

$$cfm = A \times V$$

$$TP = C \times V_p$$

TP = Total Pressure (in. w.g.)

V_p = Velocity Pressure (in. w.g.)

SP = Static Pressure (in. w.g.)

V = Velocity (fpm)

V_m = Measured Velocity (fpm)

d = Density (lb./cu. ft.)

A = Area of duct cross section (sq. ft.)

C = Duct Fitting Loss Coefficient

Recommended NC-RC Levels for Different Indoor Activity

Type of Area	NC-RC Level	Approx. dBA
Private home (urban)	25-35	30-40
Individual rooms	30-40	35-45
Private hospital rooms	25-35	30-40
Operating rooms	30-40	35-45
Laboratories	30-40	35-45
Board rooms	20-30	25-35
General offices	30-45	35-50
Concert, opera halls	15-25	20-30
Movie theaters	30-35	35-40
Lecture halls	30-35	35-40
Sanctuaries	20-30	25-35
Libraries	30-40	35-45
Schools & Classrooms	30-40	35-45
Restaurants	35-45	40-50
Retail Stores	35-45	40-50
Supermarkets	40-50	45-55

Insulation Information

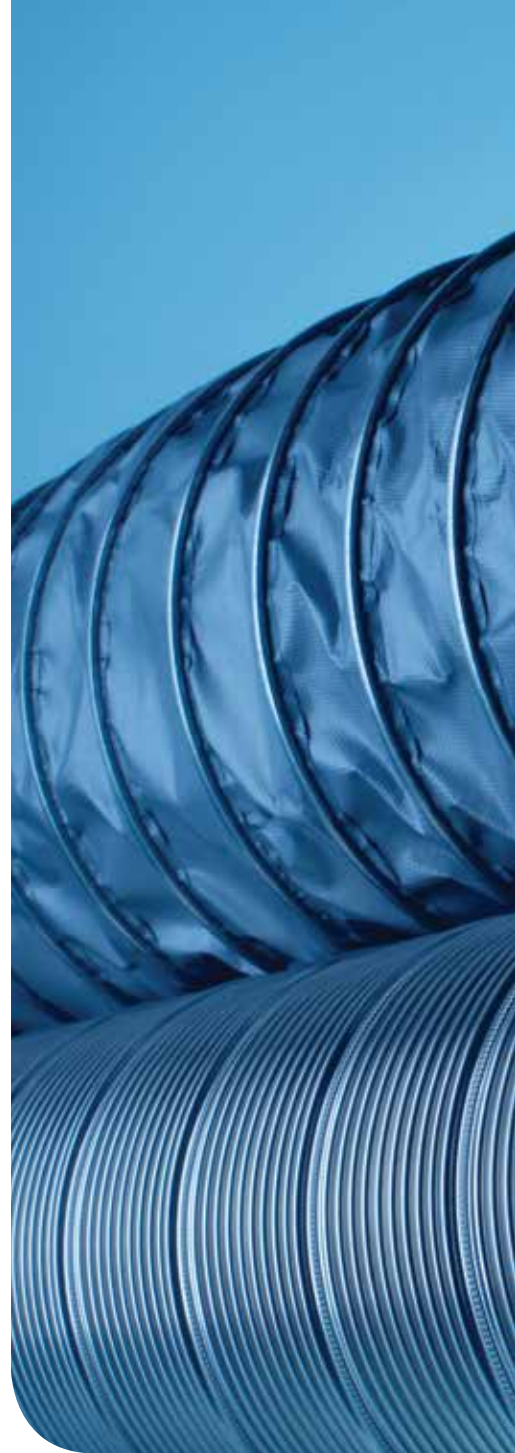
All of Flexmaster U.S.A.® products comply with ETL standards of the National Fire Protection Association NFPA No. 90A and NFPA No. 90B, also with the Follow-up Services Procedure and other applicable requirements of ETL. Only those products that properly bear the ETL Mark are considered as listed by ETL.



Installed Thickness and Thermal Performance (ASTM C518)					
Minimum Installed Thickness		R-Value		K*	
in.	mm	(hr•ft ² •°F) /Btu	m ² •C/W	Btu•in/ (hr•ft ² •°F)	W/m•C
1.125	29	4.2	0.74	0.27	0.039
1.625	41	6.0	1.06	0.27	0.039
2.25	57	8.0	1.41	0.28	0.041

*Conductivity at 75°F (mean temperature at minimum installed thickness).

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